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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,698	09/04/2003	Yoshiaki Tanaka	10844-35US (203070 (D-2))	8590
570	7590	05/17/2005	EXAMINER	
AKIN GUMP STRAUSS HAUER & FELD L.L.P. ONE COMMERCE SQUARE 2005 MARKET STREET, SUITE 2200 PHILADELPHIA, PA 19103			VORTMAN, ANATOLY	
			ART UNIT	PAPER NUMBER
			2835	

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/656,698

Applicant(s)

TANAKA, YOSHIAKI

Examiner

Anatoly Vortman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2005 (Election).  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-42 is/are pending in the application.  
4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,3,5,23 and 25 is/are rejected.  
7) ☒ Claim(s) 7,9,11,13,15,17,19,21,27,29,31,33,35,37,39 and 41 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/4/03, 2/4/05  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims withdrawn from consideration are 2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40 and 42.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Specie I, claim 1 and the odd-numbered claims between 3 and 41 in the reply filed on 04/14/05 is acknowledged. Because Applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Accordingly, non-elected claims (even numbered claims between 2 and 42) drawn to Specie II have been withdrawn from further consideration on the merits.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, and 5, are rejected under 35 U.S.C. 103(a) as being unpatentable over JP/59-8231 in view of EP/2000-141079 to Hideo (cited on IDS).

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Regarding claims 1 and 3, JP/59-8231 disclosed a thermal fuse (Fig. 1-4) having a fuse element made of an alloy composition material comprising Bi and Sn (p. 2, table 1, line 1), but did not disclose the ranges as claimed for Bi and Sn.

Hideo disclosed a Sn-Bi alloy having Bi in a range of 25-55 wt.% and Sn in a range of 45-75 wt.%, said alloy is having an improved ductility and low manufacturing cost (see translated abstract).

It would have been obvious to a person of ordinary skill in the fuse art at the time the invention was made to use the alloy of Hideo for a fuse element of JP/59-8231 in order to provide said fuse element with an enhanced ductility subsequently reducing the manufacturing cost.

Further, since said ranges of the Sn and Bi in the JP/59-8231-Hideo combination are overlapping the ranges as claimed, it would also be obvious to a person of ordinary skill in the fuse art at the time the invention was made to select ranges for Sn-Bi alloy as claimed in claim 1, since a prima facie case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art. E.g., In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1976); In re Malagari, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Regarding claim 5, the alloy inherently contains inevitable impurities.

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4. Claims 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP/59-8231 in view of EP/2000-141079 and further in view of US/1,214,879 to Baruch.

Regarding claims 23 and 25, JP/59-8231 in view of EP/2000-141079 teach all as applies to claims 3 or 5, respectively, but fail to teach a heating element.

Baruch teaches a fuse (see Figure) comprising fusible member (4) surrounded by a heating element (6) for the purpose to decrease response time of the fuse during low current overload conditions (see column 3, lines 1+).

It would have been obvious to a person of ordinary skill in the fuse art at the time the invention was made to provide said combination of JP/59-8231 and EP/2000-141079 with a heating element as taught by Baruch in order to enhance the responsiveness of the fuse during low current overload conditions.

*Allowable Subject Matter*

5. Claims 7,9,11,13,15,17,19,21,27,29,31,33,35,37,39 and 41, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

regarding claims 7, 9, 15, 17, 27, 29, 35, and 37, parent claims 7 and 9 recite: “Sn or Ag film”;

regarding claims 11, 13, 31, and 33, parent claims 11 and 13 recite: “conductors have a disk-like shape”; and,

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regarding claims 19, 21, 39, and 41, claims 19 and 21 recite: "metal particles are made of a material selected from the group consisting of Ag, Ag-Pd, Ag-Pt, Au, Ni and Cu".

The aforementioned limitations in combination with all remaining limitations of the respective claims are believed to render the claims patentable over the art of record.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

US/6570482, 5821847, 6160471, 6791448, and 5752310 disclosed M-effect electrical fuses with alloy modifiers.

US/3236976, 6222438, and 6064293 disclosed electrical fuses with alloy fusible elements.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anatoly Vortman whose telephone number is 571-272-2047. The examiner can normally be reached on Monday-Friday, between 10:00 am and 6:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Lynn Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anatoly Vortman  
Primary Examiner  
Art Unit 2835

AV

A handwritten signature in black ink, appearing to read 'A. Vortman', followed by a long horizontal line extending to the right.